INSTALLATION NOTES FOR HYDROLOGY SOFTWARE -- AWIPS RELEASE 4.3

July 30, 1999

Revised: September 27, 1999 (DR #4632 - changed DB mod procedure)
Revised: October 25, 1999 (DR #4908 - changed DB mod procedure again)
Revised: November 19, 1999 (DR #5083 - added Hydro permisssions scripts)

Instructions for installing the WHFS hydrology software (Version 2.2) at both the WFOs and the RFCs and for installing the RFC hydrology applications (NWSRFS (including calibration), flash flood guidance, and precipitation processing) at the RFCs. For WHFS, this AWIPS Release 4.3 is a minor upgrade to Version 2.2 with the version number remaining at 2.2.

A brief explanation of the different "version" numbers is provided in tabular fashion below.

AWIPS RELEASE	**IHFS DATABASE**	**NWSRFS RELEASE**	**WHFS VERSION**
3.1	1.0	7.0	2.0
4.0	1.0	8.0 & 9.0	2.0
4.1	1.1	10.0	2.1
4.2.x	1.2	11.0, 12.0, 13.0	2.2
4.3	1.2	14.0, 15.0	2.2 (plus)

NOTES!!!!!!!!

This installation assumes that AWIPS Release 4.2.3 is already installed.
DO NOT attempt to install this software if this is not the case.

The installation should be done as the "oper" user, except where noted.
For some steps, "root" permission is required.

INTRODUCTION:

Documents for this release of software are included in the
/awips/hydroapps/bld43_docs/ directory once Release 4.3 is installed.
The documents included are:

INSTALL_hydro_bld43.txt -- this set of installation procedures for the WHFS software and the RFC hydrology software
RELEASE_whfs22_bld43.txt -- additional release notes for WHFS V2.2
RELEASE_nwsrfs_bld43_r14.txt -- release notes for Release 4.3 nwsrfs r14
RELEASE_nwsrfs_bld43_r15.txt -- release notes for Release 4.3 nwsrfs r15
RELEASE_ffg_bld43.txt -- release notes for Release 4.3 flash flood guidance software
RELEASE_precip_proc_bld43.txt -- release notes for Release 4.3 precipitation processing system software

The installation procedures are divided into the following sections.
Instructions are given for software to be installed at all sites (WHFS software)
and, where appropriate, additional instructions are provided for RFC sites (RFC
software).

I. SHUT OFF SPECIFIC PROCESSES
II. CLEAN OUT OBSOLETE PARTS OF EXISTING /awips/hydroapps DIRECTORY TREE
III. INSTALL APPROPRIATE AWIPS RELEASE 4.3 BASELINE FOR SITE TYPE
IV. FIX HYDRO DATABASE STORED PROCEDURES
V. RESTORE SELECT LOCAL FILES
VI. CUSTOMIZE ENVIRONMENT AND RESTART PROCESSES

(END OF INSTALLATION PROCEDURES)

VII. SWITCH BETWEEN OPERATIONAL AND TEST ENVIRONMENTS

STEP-BY-STEP INSTRUCTIONS:

I. SHUT OFF SPECIFIC PROCESSES

A. ALL SITES

1. Shut down ALL Hydro interactive user application processes on ALL workstations.

2. Stop the SHEF Decoder ingest process (as user "oper" on the ds1 machine):

```
/awips/hydroapps/shefdecode/bin/stop_shefdecode
```

3. Move the previous Release 4.2 whfs_crontab file to a different name as it won't be used for Release 4.3. It will be replaced by two new WHFS crontab files, one specifically for ds1 and one specifically for as2 that arrive in Section III.A. below.

```
mv /awips/hydroapps/whfs/local/bin/whfs_crontab
  /awips/hydroapps/whfs/local/bin/whfs_crontab.R42
```

4. Copy the previous Release 4.2 METAR-TO-SHEF Translator configuration file to a different name but leave original file in place also. An alternate configuration file is delivered in Section III.A. below.

```
cp /awips/hydroapps/whfs/local/data/app/metar2shef/metar.cfg
  /awips/hydroapps/whfs/local/data/app/metar2shef/metar.cfg.R42
```

II. CLEAN OUT OBSOLETE PARTS OF EXISTING /awips/hydroapps/ DIRECTORY TREE

A. ALL SITES

1. Clean out existing directories as described below.

The AWIPS Release 4.3 Hydro software in ALL cases provides INCREMENTAL updates to AWIPS Release 4.2.x. All software provided by OH is located under /awips/hydroapps/. Each of the existing directories under /awips/hydroapps/ are listed below, with the action required on the directory tree specified after the directory name.

bld42_docs - DO NOTHING (save as reference material)
fonts - DO NOTHING
ihfsdb_conversion - DO NOTHING (a file is added here)
lost+found - DO NOTHING
public - DO NOTHING (a file is added here)
shefdecode - DO NOTHING (SHEF Decoder executable updated)
whfs - DO NOTHING (several files updated here)
whfs_save41 - DELETE the entire directory tree; obsolete

To remove a directory tree use the following command:

```
rm -fr /awips/hydroapps/dirname
```

where dirname is the name of directory to be eliminated.

B. RFC SITES ONLY

1. At RFCs there is an additional directory under /awips/hydroapps/ called rfc which contains the RFC-only applications.

2. These updates for AWIPS Release 4.3 are for the precip_proc, nwsrfs and ffg directories. Please refer to the RELEASE_precip_proc_bld43.txt, RELEASE_nwsrfs_bld43_r14.txt, RELEASE_nwsrfs_bld43_r15.txt, and the RELEASE_ffg_bld43.txt files for specific changes.

3. At the this time (29 July 1999), the currently released version of NWSRFS (Release 15.0) is the version installed in AWIPS Release 4.3.

4. Rename the /awips/hydroapps/rfc/nwsrfs/esp directory

```
cd /awips/hydroapps/rfc/nwsrfs
mv esp ens
```

5. Backup the following files:
   cd /awips/hydroapps/rfc/nwsrfs/sys_files
   cp DATATYPE DATATYPE.b42
   cp FILEUNIT FILEUNIT.b42

III. INSTALL APPROPRIATE AWIPS RELEASE 4.3 BASELINE FOR SITE TYPE

A. ALL SITES

1. Install the appropriate AWIPS Release 4.3 baseline for the site type.
   NOTE: This is an INCREMENTAL upgrade to AWIPS Release 4.2.3.

2. Make selected files owned by the "oper" user. You must be the "root" user to do this! Issue the command:

   ```
   cd /awips/hydroapps
   chown oper:users .Apps_defaults
   chown oper:users set_hydroapps_perms.ksh
   chown -R oper:users bld43_docs
   chown -R oper:users ihfsdb_conversion
   chown -R oper:users shefdecode
   chown -R oper:users whfs
   ```

3. Set proper directory and file permissions for the /awips/hydroapps tree. Issue the commands:

   ```
   chmod 775 set_hydroapps_perms.ksh
   ./set_hydroapps_perms.ksh
   ```

B. RFC SITES ONLY

1. Make all updated rfc files owned by the "oper" user. You must be the "root" user to do this! Issue the commands:

   ```
   cd /awips/hydroapps
   ```

```
chown oper:users set_rfcapps_perms.ksh

cd /awips/hydroapps/rfc
chown -R oper:users ffg/bin
chown -R oper:users nwsrfs/calb/bin
chown -R oper:users nwsrfs/ens/bin
chown -R oper:users nwsrfs/icp/bin
chown -R oper:users nwsrfs/ifp/bin
chown -R oper:users nwsrfs/ofs/bin
chown -R oper:users nwsrfs/util/bin
chown -R oper:users precip_proc/bin
chown oper:users nwsrfs/doc/nwsrfs_outline
chown oper:users nwsrfs/icp/app-defaults/ICP
chown oper:users nwsrfs/sys_files/DATATYPE
chown oper:users nwsrfs/sys_files/FILEUNIT

cd /awips/hydroapps/public/bin
chown oper:users find_doc
```

2. Set proper directory and file permissions for the /awips/hydroapps/rfc tree. Issue the commands:

```
chmod 775 set_rfcapps_perms.ksh
./set_rfcapps_perms.ksh
```

IV. FIX HYDRO DATABASE STORED PROCEDURES

There is no general database conversion to move from AWIPS R4.2.3 to AWIPS R4.3, however, there is one script that must be run against the IHFS_DB.

This script adds a new record to the PurgeDynData table to add a new retention period for the FloodTs table, drops and replaces the "delete_radar" stored procedure, drops and replaces the "obs_precip_upd" stored procedure, drops and replaces the Precip table triggers, drops and replaces the "fcst_pe" stored procedure, and drops and replaces the "obs_pe" stored procedure. The fixes for the procedures and triggers are in response to DR #4632 and DR #4908. This script must be run as user "oper" and the SHEF Decoder data ingest must be shut down.

Run the script:

/awips/hydroapps/ihfsdb_conversion/modify_hydroDB_procs.ksh

V. RESTORE SELECT LOCAL FILES

NO restoration of local files is necessary.

VI. CUSTOMIZE ENVIRONMENT AND RESTART PROCESSES

A. ALL SITES

1. If not running, start the AWIPS data flow from the Satellite Broadcast Network (SBN) to receive SHEF messages and DPA/HDP radar products into the IHFS_DB hydro database.

   (NOTE: METAR messages are received from the WFO-Advanced textDB Informix database via database triggers and procedures. They should be triggered to come over from the textDB, processed by the METAR-to-SHEF Translator, and eventually to be put into the IHFS_DB hydro database.)

2. If not running, start the SHEF Decoder on the ds1 machine (as user "oper") using the script at:

   /awips/hydroapps/shefdecode/bin/start_shefdecode

B. WFO SITES ONLY

1. If not running, start the DPA/HDP decoding process on the ds1 machine (as user "oper") using the script at:

/awips/hydroapps/whfs/standard/bin/start_process_dpafiles

2. Install the newly delivered METAR-TO-SHEF Translator configuration file that has been optimized to ingest data faster because only essential parameters are pulled out of the METARs.

   cp /awips/hydroapps/whfs/local/data/app/metar2shef/metar.cfg.trim
   /awips/hydroapps/whfs/local/data/app/metar2shef/metar.cfg

3. If not running, install the "oper" user crontab on the ds1 machine:

   log in to the ds1 machine as "oper",

   crontab /awips/hydroapps/whfs/local/bin/whfs_crontab_ds1

   This will set up all of the automatic jobs that need to run on the clock for WHFS on the ds1 machine.

   (NOTE: If the site has customized the previous WHFS crontab settings, then the site must compare this new general WHFS crontab with the previous customized crontab and make appropriate adjustments to the new crontab. The previous crontab file has been saved during this upgrade as: /awips/hydroapps/whfs/local/bin/whfs_crontab.R42.)

4. If not running, install the "oper" user crontab on the as2 machine:

   log in to the as2 machine as "oper",

   crontab /awips/hydroapps/whfs/local/bin/whfs_crontab_as2

   This will set up all of the automatic jobs that need to run on the clock for WHFS on the as2 machine.

   (NOTE: If the site has customized the previous WHFS crontab settings, then the site must compare this new general WHFS crontab with the previous customized crontab and make appropriate adjustments to the new crontab. The previous crontab file has been saved during this upgrade as: /awips/hydroapps/whfs/local/bin/whfs_crontab.R42.)

C. RFC SITES ONLY

1. If not running, start the DPA/HDP radar product decoding process according to standard RFC procedures (varies among the RFCs). There

should be no change from AWIPS Release 4.2.x.

2. If not running, install the "oper" user crontab according to standard RFC procedures (varies among the RFCs). There should be no change from AWIPS Release 4.2.x.

3. Make sure that each user environment gets created as in Release 4.2 so that:
   a. The APPS_DEFAULTS, APPS_DEFAULTS_USER, and APPS_DEFAULTS_SITE environment variables are set. APPS_DEFAULTS must be /awips/hydroapps/.Apps_defaults.
   b. The following directories are in the users PATH
      /awips/hydroapps/rfc/nwsrfs/ofs/scripts
      /awips/hydroapps/public/bin
   c. The fun function is set up upon login. This can be done by running:
      . /awips/hydroapps/public/bin/fun
      when the user logs in or creates a new window.

4. Check that file exists so IFP can run on the Xterminals (DR 1131):
   a. check that
      /opt/hpxt/enware/xthome/fonts/hp_roman8/75dpi/as.fonts.alias
      or
      /opt/hpxt/enware2/xthome/fonts/hp_roman8/75dpi/as.fonts.alias

      exists on AS1 and AS2.

      if it does go on to step 3 - if not, continue with steps b and c below.
      NOTE: Either the ../enware or ../enware2 directory will exist on th AS1 and AS2 machines (depends on the version of the Xterminals). Use the appropriate directory names in steps b and c.

   b. copy the /awips/hydroapps/fonts/hp_roman8/75dpi/as.fonts.alias file to the /opt/hpxt/enware/xthome/fonts/hp_roman8/75dpi or /opt/hpxt/enware2/xthome/fonts/hp_roman8/75dpi directory on AS1 and AS2.

   c. rename the file to fonts.alias in the /opt/hpxt/enware/xthome/fonts/hp_roman8/75dpi or /opt/hpxt/enware2/xthome/fonts/hp_roman8/75dpi) directory.

5. Remove the following symbolic link
   cd /usr/lib/X11/app-defaults

rm espadp

6. Create symbolic links for all files (there should be 1) in the
   /awips/hydroapps/rfc/nwsrfs/ens/app-defaults directory
   to the /usr/lib/X11/app-defaults directory.

7. Check on symbolic links from RFC application resource files to the
   /usr/lib/X11/app-defaults directory. Recreate if necessary.
   a. Recreate symbolic links for all files (there should be 6) in the
      /awips/hydroapps/rfc/nwsrfs/ifp/app-defaults directory
      to the /usr/lib/X11/app-defaults directory.
   b. Recreate symbolic links for all files (there should be 2) in the
      /awips/hydroapps/rfc/precip_proc/app-defaults directory
      to the /usr/lib/X11/app-defaults directory.
   c. Recreate symbolic links for all files (there should be 1) in the
      /awips/hydroapps/rfc/nwsrfs/icp/app-defaults directory
      to the /usr/lib/X11/app-defaults directory.
   d. Example of creating a symbolic link
      ln -s /awips/hydroapps/rfc/nwsrfs/ifp/app-defaults/IFP_map
      /usr/lib/X11/app-defaults

END OF INSTALLATION PROCEDURES

VII. SWITCH BETWEEN OPERATIONAL AND TEST ENVIRONMENTS

A. PRC Test Beds for WHFS

The PRC Test Beds will have a test data environment in addition to an operational data environment available to them. The following changes must be made to switch between the WHFS operational data environment and the WHFS test data environment.

1. Data Ingest and Cron Jobs

In order to use the test database, it is necessary to turn off the normal data ingest and the automatic cron jobs that work with the operational database.

a. For the test environment, turn off the SHEF Decoder, the DPA/HDP processing script, and disable the cron jobs. Also, if you intend to use the test environment for an extended period of time, then turn off the AWIPS data flow.

As user "oper" on the ds1 machine, execute the scripts at:
/awips/hydroapps/shefdecode/bin/stop_shefdecode and
/awips/hydroapps/whfs/standard/bin/stop_process_dpafiles
As user "oper" on the ds1 machine, remove the crontab:
crontab -r
As user "oper" on the as2 machine, remove the crontab:
crontab -r

b. For the operational environment, restart the SHEF Decoder, restart the DPA/HDP processing script, and enable the cron jobs. Also, restart the AWIPS data flow if it has been stopped.

As user "oper" on the ds1 machine, execute the scripts at:
/awips/hydroapps/shefdecode/bin/start_shefdecode and
/awips/hydroapps/whfs/standard/bin/start_process_dpafiles
As user "oper" on the ds1 machine, install the crontab:
crontab /awips/hydroapps/whfs/local/bin/whfs_crontab_ds1
As user "oper" on the as2 machine, install the crontab:
crontab /awips/hydroapps/whfs/local/bin/whfs_crontab_as2

2. The /awips/hydroapps/.Apps_defaults_site File

There is one token in the .Apps_defaults_site file that controls which Informix database is used by WHFS.

a. For the test environment, make sure the db_name token is set:

db_name : hd1_2test

b. For the operational environment, make sure the db_name token is set:

db_name : hd1_2sss

where sss=AWIPS modernized site id

3. The WHFS hydro_env File

There are four environment variables in the hydro_env file

/awips/hydroapps/whfs/standard/bin/hydro_env

that control the location of grid data files.

a. For the test environment, change the values so the lines in the file read:

export STAGE1_GRID_DIR=...../ihfs_testdata/grid/stage1
export STAGE2_GRID_DIR=...../ihfs_testdata/grid/stage2
export STAGE3_GRID_DIR=...../ihfs_testdata/grid/stage3
export MISC_GRID_DIR=...../ihfs_testdata/grid/misc

depending on where you have installed the ihfs_testdata directory tree that was delivered for Release 4.2 WHFS testing.

b. For the operational environment, change the values so the lines in the file read:

export STAGE1_GRID_DIR=$LOCAL_DATA_DIR/grid/stage1
export STAGE2_GRID_DIR=$LOCAL_DATA_DIR/grid/stage2
export STAGE3_GRID_DIR=$LOCAL_DATA_DIR/grid/stage3
export MISC_GRID_DIR=$LOCAL_DATA_DIR/grid/misc

4. The WHFS local_hydro_env File

There is one environment variable in the local_hydro_env file

/awips/hydroapps/whfs/local/bin/local_hydro_env

that controls the location of geo reference data files.

a. For the test environment, change the value so the line in the file reads:

export WFO_GEODATA_DIR=...../ihfs_testdata/geo

depending on where you have installed the ihfs_testdata directory tree that was delivered for Release 4.2 WHFS testing.

b. For the operational environment, change the value so the line in the file reads:

export WFO_GEODATA_DIR=$LOCAL_DATA_DIR/geo

5. To use the WHFS test database, hd1_2test, you must first import it into Informix on the ds1 machine as user "oper" by:

   cd ...../ihfs_testdata

   depending on where you have installed the ihfs_testdata directory tree that was delivered for Release 4.2 WHFS testing.

   dbimport hd1_2test -d <desired dbspace>

B. PRC Test Beds for RFC Sites

The RFC software is delivered with test data. The following changes should be made to switch between an operational data environment and a test data environment.

1. NWSRFS
   a. For the test environment, make sure the following tokens in the .Apps_defaults_site file are set to the test data values:

      ofs_level : ofstest
      ofs_inpt_gp : ofstest
      ifp_rfc : ofstest

   b. For an operational environment remove the following tokens from the .Apps_defaults_site file:

      ofs_level : oper
      ofs_inpt_gp : oper

      Set the following token in the .Apps_defaults_site file:

      ifp_rfc : xxrfc where xx is the standard 2 character prefix for an RFC name - i.e. abrfc
      This is used to determine what geo_data files are used for the mapping.

2. StageII/III
   a. For the test environment:
      1. Become the "oper" user.

      2. Create the hd1_2rfctest database (as the "oper" user).

This test database is one from the Arkansas-Red Basin RFC (abrfc).

cd /awips/hydroapps/rfc/rfctest
dbimport hd1_2rfctest -d <desired dbspace>

(NOTE: <desired dbspace> is the appropriate applications
database space to use (if the -d option is not specified it will
use the default of rootdbs which is not appropriate.)

3. Change to the precip_proc test directory

cd /awips/hydroapps/rfc/rfctest/precip_proc/scripts

execute the Run_Stage3 or Run_Post scripts

These scripts set up an environment that will use the hd1_2rfctest database.

b. For the operational environment:

1. Make sure the following .Apps_defaults_site file tokens are
set to the operational data values.

db_name : hd1_2sss where sss=site id
st3_rfc : xxrfc where xx is the standard 2 character prefix for an RFC name
- i.e. abrfc. This is used to determine what geo_data
files are used for the mapping.

2. Run the scripts in the operational directory
/awips/hydroapps/rfc/precip_proc/scripts